Guide to Bluetooth Mobile Phone

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Preparation

To communicate a portable computer with your Bluetooth device, it is necessary that the portable computer has a capability of Bluetooth wireless communication. Nowadays, many portable computers with a build-in Bluetooth communication device are commercially available, such as some of IBM T23, X22/23/24, and SONY C1-MSX, the series types of SRX7, and some of the series types of Toshiba tecra 9000, etc.

Of course, if your portable computer does not have a build-in Bluetooth device, just like my computer X22 9HH, you can expand it by externally connecting a Bluetooth adapter. Fig. 1 and 2 show the Bluetooth adapters for USB interface of 3Com and MSI. Other PC cards and special interface (such as the UltraPort interface of IBM, and MutilPort interface Bluetooth modules of Compaq) are also commercially available on the market. You can select one according to your own needs.

In this text, the Bluetooth adapter for USB interface of MSI is taken as an example. This type of adapter has a perfect driver and a stable core module. You can get one with only 350 RMB (the price in Guangzhou in July) as well as one-year warranty provided by MSI for free. The defect is that the shell is slightly rough.

Even if being used in Windows XP, the Bluetooth device is not a plug and play one, because there is no standard Bluetooth management application built in the Windows XP. Please be noted that some Bluetooth adapters (for example, the Bluetooth adapter for USB interface of MSI taken for an example in this text) can be recognized by Window XP and installed driver automatic. However, since there is no management application in the operating system, these Bluetooth adapters cannot perform all their functions until an additional management application is installed.

Before actually communicating with each other, the Bluetooth devices need match with each other and thereby establish trust relationships between them. Only those devices that succeed in matching with each other can perform the subsequent communication and share the resources. Herein, this text will describe taking the

matching between portable computers T68 and SONY PCG C1-MSX as an example. In general, the matching between the portable computer and all the Bluetooth devices is subjected to a similar process (Fig. 3).

Connection

At first, turn on the Bluetooth ports in a mobile phone and a portable computer. On T68, turn the joystick left or right to enter menu options; then select "connection →Bluetooth→receivable" (Figs. 4-6), "receivable within 3 minutes" will be displayed on the mobile phone. In this way the Bluetooth module built-in the mobile phone is turned on. Of course, such connecting method is temporary. The phone will turn off the Bluetooth module automatically if there is no Bluetooth connection within 3 minutes. Whereas as long as the phone keeps connection with the Bluetooth module of the portable computer, the mobile will not disconnect the Bluetooth connection automatically even if no data is transmitted between them. You can also turn the joystick left or right to enter menu options and then select "connection→Bluetooth→ operation method" (please be noted that this operation can be performed only when the Bluetooth module is turned off), select to activate it so that the mobile keeps the internal Bluetooth module on all the time. However, the life span of the mobile battery will be greatly shortened due to this operation, thus it is suitable only when it is inconvenient to operate the mobile (for example, when the mobile is put in a bag and is under by a pile of baggage) (Fig. 7). If such special situation hardly happens to you, you are still suggested to set "operation method" as "automatic", so that the Bluetooth connection is turn on if necessary, which is more power-saving.

Next, turn on the Bluetooth switch of the portable computer. The blue indicator lamp for Bluetooth on the upper-right corner of the screen will be turned on. After an elapse of ten seconds, Blue Space Bluetooth management application attached to the computer is activated. Up to now, the preparation of hardware is completed (Fig. 8).

To facilitate the management of connection, you can set a name for the portable computer in BlueSpace, and herein it is set as VAIO-PCG-C1-MSX. Besides, it is also necessary to set the search period of the Bluetooth connection and the corresponding function COM interface (a virtual COM interface is used to connect between

Bluetooth devices).

At this time, neither the mobile phone nor the portable computer is displayed in the other since the matching is not yet performed. It is different from the infrared ray by which the devices will discover each other once they are connected.

Next, search for a device through the menu "connection→Bluetooth→search for a device" of the mobile phone. An indication of "on searching" is displayed on the mobile phone, and later a VAIO-C1-MSX is displayed, which indicates the portable computer is discovered (Figs. 9 and 10); at the time, press the key "YES" on the mobile, and you will see two options of "start the mobile phone" and "accept matching", we suggest selecting the option of "accept matching" (Figs. 11 and 12), and then the phone is in a state of waiting for matching. Of course, you can also select the option of "start the mobile phone" to make the phone match actively. However, the Bluetooth module in some phone is passive, that is, such kind of mobile phone can only accept matching rather than match actively.

Next, press the circle button in the BlueSpace application, the BlueSpace will begin to search devices and produce the sound of "beep … beep …" like the sonar of a deep sea submarine. Then a phone "T68@witson" is discovered, which is just the T68 of Ericsson used in this test.

Then, double click on the discovered device, a dialog box will popup, requiring you to input an identifier to establish a connection relationship. The identifier is a number of 1-16 digits or letters. We herein input 123 (it is better to use simple digital identifier when connecting to a mobile phone; otherwise, you'll be bothered by inputting a pile of letters in the phone) for simplify, and then click on OK (Fig. 13).

An interface is popup on the phone, requiring you to input the same identifier. Input the identifier and then press the key "YES". Both the portable computer and the mobile phone will display the success of matching in a minute. In this way, the connection relationship is established between the two Bluetooth devices and the further data exchange can be perfomed (Fig. 14).

If some other devices to be connected to a portable computer exist, you can keep searching; otherwise, the configuration can be started.

In the BlueSpace, the available services of the phone, after the trust relationship

is established, can be displayed. If both sides of the item in the figure have bright blue brackets, it means this service is one supported by both parties (Fig. 15). If only the bracket on one side is bright blue, it means only one party supports this service, that is, this item of function cannot be used by both devices.

At this time, the portable computer will automatically establish a corresponding communication with the phone via the Bluetooth interface, as long as the corresponding service button is clicked. The service can be communicated with one device, or can be communicated with plural ones in the case that these devices are supported by the mobile phone.

Fig. 16 is an interface showing that the name-card exchange and the connection between fax/Modem and virtual serial connection are activated simultaneously.

Then, you can communicate with the phone using various supplementary applications of the phone (all the Bluetooth devices have a defaulted name-card exchange service that needs no application or software). If the phone supports network service, it is possible to establish a dial-up connection in Windows, connecting the portable computer to the internet via GSM or GPRS.

The portable computer or Bluetooth adapter of every brand has a management application of itself. Since there in no built-in Bluetooth management application in Windows XP, the management applications of each brand have some distinction in both the interface and operating method, but their general concepts are identical. All the Bluetooth management application will go through the following three steps:

1. search Bluetooth devices within the valid range;

2. establish connection relationship (matching);

3. if they are matched, connect through virtual serial port, and perform much more services using applications that support the virtual serial port.

About the mobile phone

Hereinafter, let's take the typical Bluetooth mobile phone, T68 of Ericsson, as an example to introduce the practical applications of the mobile phone together with the portable computer. Of course, it is on the premise that you have correctly matched the phone with the computer and have applications as mentioned below.

Please be noted that we don't suggest executing these applications in the operating system of Windows 98. Although the externally connected Bluetooth adapts of all brands are publicized as supporting Windows 98, however, there is some unstable situations in the practical application, even no response at all... ..... It is recommended to execute these applications under Windows XP or Windows 2000, and moreover the two operating systems are much more stable than Windows 98.

Data synchronization between phone and computer

Have you tried ever pitifully inputting your contacts one by one into your mobile phone using the keyboard after you changed a phone? Although for many mobile phones, the contacts can be stored in SIM card, the limited capacitance of the card cannot be enough for a widely communicative person. Furthermore, if you lost your mobile phone unfortunately, you even lose the chance to restore the information stored in the SIM card. Also for job tasks, it seems no mobile phone has such a function as storing them in a SIM card.

Now you can never be bothered any more. As long as you create the information of contacts in Outlook, you can enjoy the benefits once and for all. You can recreate you communication network in the mobile phone in a rather short time period by synchronizing T68 and the Outlook in the computer. Only in less than 1 minute, I stored my 200 contacts in my T68 by using Bluetooth and the application of XTND Connect PC of Ericsson.

The application of XTND Connect PC is a powerful application. In addition to the special version of Ericsson, it supports other platforms, such as PocketPC and PALM, etc. The objects that can be synchronized with it are not limited to Outlook. The complete version can also be synchronized with applications like Lotus Note, Symantec ATC, and Lotus Organizer, etc. You can free download a plural language version (including simplified Chinese and traditional Chinese) for Ericsson mobile phones from the official website of Ericsson. But payment is additionally necessary to get a complete version. After the application of XTND Connect PC is installed, its corresponding buttons and menu will appear in Outlook, and then you can directly operate in Outlook synchronously, instead of additionally starting the application of

XTND Connect PC (Fig. 17).

Besides monitoring whether the mobile phone has been connected to the computer, this application also set which of the ports that is used by the computer to communicate with the phone, which is very important. The Bluetooth management applications of each brand will have different virtual serial ports, so the port shall be selected according to practical situation. If the Bluetooth USB adapter you used is that of MSI, ensure that the ports of COM7 and COM8 are turned on (Fig. 18); otherwise, it is impossible to be connected no matter how many times you click the mouse. Additionally, we suggest setting the options in "settings" as "display icon only when connected" (Fig. 19). In this way, a small icon will appears in the taskbar after the mobile phone is connected to the computer via Bluetooth. This can be taken as a method for determining whether or not the connection is succeed.

Next, the application of XTND Connect PC can be started to perform connection. Because of the restriction by the functions and capacitance of the memory of T68, T68 is only capable of synchronized with three items of contacts, calendar, and task of Outlook; email cannot be synchronized (Ericsson T68 can receive email by itself) (Fig. 20).

Before synchronization, you can set the synchronization options in the application of XTND Connect PC according to your requirements. For most people who only want to synchronize the phonebook, only the option of contacts needs to be checked. The capacitance of T68 makes it possible to store 510 contacts, which is enough for an ordinary user.

If you need to use the mobile phone to management your work, you can also select calendar (i.e. the calendar in Outlook) and work (i.e. the task in Outlook). However, because the memory of the phone is limited and the mobile phone does not have the pre-reading and cache function of a computer, and furthermore, the operation speed of T68 is quite slow (it is the reason why T68 is criticized mostly), thus the operation speed will probably further decrease if you synchronize many calendar and tasks in Outlook with the phone.

If you have to set calendar and tasks, it is suggested adding some regulations in the application of XTND Connect PC so as to reduce the appropriation amount of the

memory of the phone and the amount of read data without affect the task management.

Select the option of "screening" among the setting value buttons on the main interface of the application of XTND Connect PC, and in this option, you can set regulation to the calendar and the work that has done. You will see as you take a look at it personally. The smaller the range of the regulation is, the fewer the data that is synchronized to the phone is, and the higher the operation speed of the mobile phone will be. However, it would be necessary that you perform synchronization to update the data every several days (Fig. 21).

Certainly you can also click "record filtration" button on the left-lower corner to select the content necessary to be synchronized one by one. Such function may be applied to the synchronization for the first time, as there is many data that is cannot be filtrated by regulation at the first synchronization, but you don't want to synchronize them to the phone; at this time you have no choice but to select them manually. Such manual filtration can be performed on contacts, calendar, and work, just canceling the ticks before those items not to be synchronized.

With all settings OK, the synchronization can be started. Click the "synchronization" button on the upper right corner of the main interface, the synchronization begins immediately. At first, the application will search for the available COM ports (i.e. these ports set in the application of Phone Monitor of Ericsson), at this time "connection is being started" is displayed on the interface (Fig. 22). If the setting is correct and "display icon only after being connected" is set in the option of "setting" in the application of Phone Monitor of Ericsson, an icon of the Ericsson phone will appear in the taskbar, indicating the connect is succeed (Fig. 23).

Then, a dialog box will popup, asking whether or not to permit an external application to access the database of Outlook, which is an antivirus function added since Outlook2000 to prevent virus as well as XTND Connect PC from accessing the database of Outlook at the time the operator is unknown. Tick "access permitted" and then select a time range. Usually, it is secure to set 3 or 5 minutes for the first access (the amount of data is larger at the first time, so if you choose 1 minute as defaulted, it

is probably disconnected before the transmission is completed). After the selection, press the button "YES", the synchronization begins in fact (Fig. 24). The process will be displayed during the synchronization. A dialog box will be popup to prompt that the synchronization is completed.

During this process, the screen of the phone will display "synchronizing", and "synchronization completed" after the synchronization is completed. Now take a look at your phone, all the contacts been synchronized to the phone. With respect to the individual operation concerning this application with the pictures and rings of the phone, it has been explicitly introduced in ninth issue, and you can refer to it.

Bluetooth plus GPRS
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——omnipresent wireless internet
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Since China Mobile provided GPRS wireless internet, I have been thinking about the feasibility of combining the mobile phone and a portable computer so as to connect the portable computer to the internet. I have used the previous GSM net, but the speed of connecting to the net is too slow to use. The bandwidth is only 9.6Kbps, and even the MSN Messenger fails to keep online steadily. If you merely chat by OICQ and can bear the delay, GSM is sort of acceptable; yet the speed of opening a web page is rather slow, which make the wireless internet based on GSM unpractical.

It is said that GPRS is capable of providing a bandwidth of 57.6Kbps at present, and the bandwidth will be expanded to 115Kbps in the future. So, how is the practical application? Let's have a look at it (before performing the following operations, ensure that you have correctly matched the mobile phone with the Bluetooth device connected to the computer and correctly set the corresponding ports; otherwise, the subsequent operations cannot be performed.).

Preparation

At first, a data account needs to be created in the phone. You can refer to the GPRS setting manual issued by the local China Mobile. T68 is one of the top-ten GPRS mobile phones recommended by China Mobile. A setting manual printed in both text and picture can be obtained in the business hall of China Mobile, and the

details will not be repeated here.

Please be noted that the access point of the GPRS data network is different from that of WAP. You should set different connection for the two if you need both of them. That is, it is probably necessary for you to set two data accounts. Please refer to the GPRS setting manual of China Mobile for the detail parameters. Some settings different from those in the manual of China Mobile will also be described below.

To establish a GPRS connection on the computer, you can finish the simple setting using "Guide for newly established connection" built-in the operating system (Fig. 25).

Click the button "next" on the screen of "welcome to test the guide for newly establishing connection", and then select "connect to the network of my workplace" (please note that it is not "connect to the internet") and then select "next" (Fig. 26).

In the dialog box regarding network connection, select "dial-up connection" and press "next"; then select the ports you need. In general, a Bluetooth device has a plurality of virtual ports in a computer, so it is necessary for you to select a serial port to communicate with your mobile phone. Com8 is usually selected when Bluetooth USB adapter of MSI is used. Then, click "next" and continue the setting (Fig. 27).

You will be required to input the telephone number for dial. Please input *99# (Fig. 28) and then name the connection. I input "GPRS" here and then click "next". The setting is completed and a connection named GPRS is established. For the subsequent operations, you can treat them as an ordinary dial-up connection (Fig.29).

Click "GPRS dial-up connection". An interface appears, and you only need to click "dial the number" directly. The DNS setting to be performed as required in the manual of China Mobile is actually unnecessary, for the website can be discovered without setting DNS whereas it is probable that some special websites cannot be accessed after a DNS is set (Fig.30).

In the setting manual of China Mobile, it is claimed that GPRS at present supports only TCP/IP protocol, so the network application that needs other protocols probably cannot work normally under the GPRS connection. I haven't made further attempt, and those users who need can take a trial themselves (Fig. 31).

Finally, the connection speed of MODEM shall be set. It is set as 57600Kbps as

required by Telecom. Of course, you can set is as 115200Kbps as you wish, but the fastest speed is 57600! (Fig. 32)

After the setting is finished, click the "dial the number" and the number is dialed. The subsequent process is somewhat the same as a general Modem dial, and the only difference is that there is no sound due to that the virtual COM port is adapted.

Just like the display of a general MODEM dial, "the port is being turned on" (Fig. 33) and "'99#' is being dialed" (Fig. 34) will be displayed during the dial. An indication will appear at the right-lower corner of the system tray when the connection is completed. During this process, the Bluetooth lamp of the mobile phone will twinkle frequently and the words of "on connecting" will also appears in the phone until the end of dial.

57.6Kbps is displayed. Don't think that the speed of GPRS is really so fast. It is just the connection speed between the phone and the Bluetooth port, and the speed is always displayed as 57.67Kbps no matter how many times you dial (Fig. 35).

As to the speed we care most, I think it is not that favorable. In fact, the speed is only about 33.6Kbps, and sometimes it may be 6Kbps. However, this might be due to region where I am located.

In addition, my mobile phone of T68 can be used for about 3 days in a case that the phone is turned on all the time and has a call time of 20 minutes every day, but the phone can be used only for 6-7 hours once the Bluetooth and GPRS are activated. It can be seen that the electrical power of the phone is greatly cost by Bluetooth and GPRS, whereas my Bluetooth adapter for USB, i.e., MSI, does not cost much power of the portable computer. The duration of the battery of the computer is only shorten by 15 minutes in the case that the computer communicated with the mobile phone via Bluetooth and is connected to the internet via GPRS.